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Radial Pivot Fastener

F. Radial Pivot Fastener

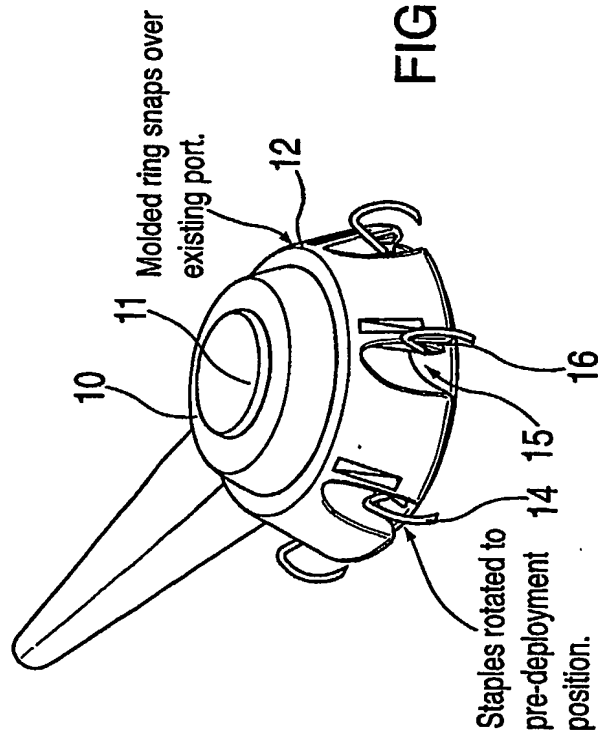


FIG. 1

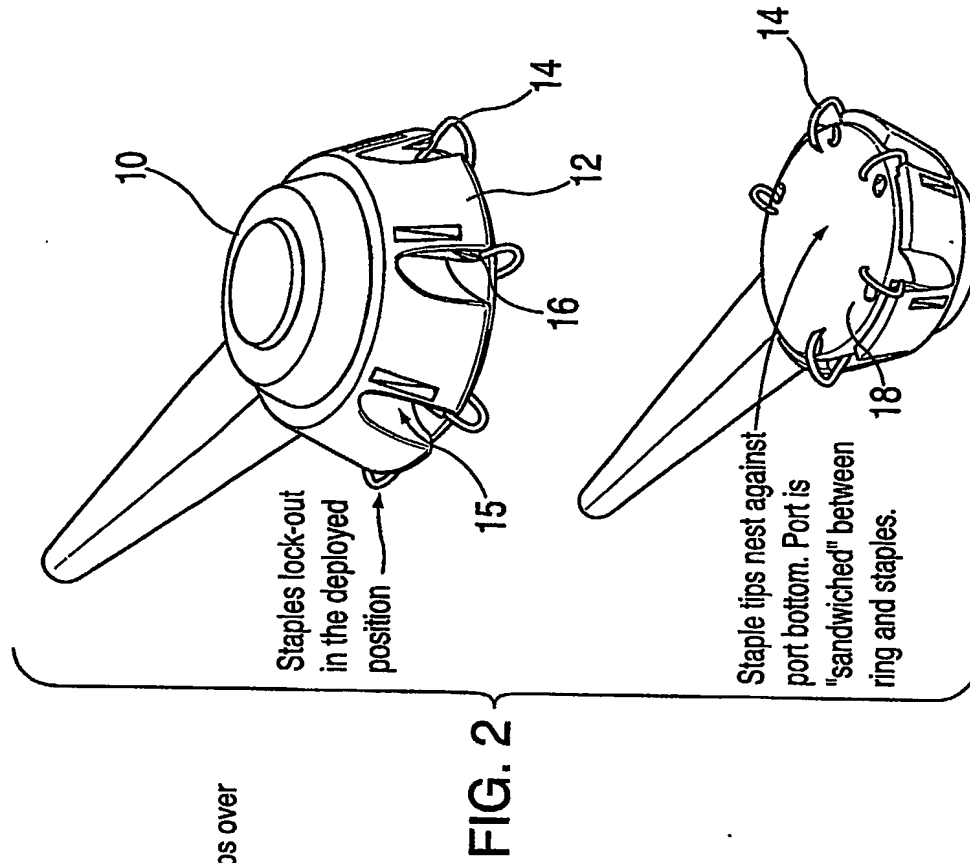


FIG. 2

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Radial Pivot Fastener (detail)

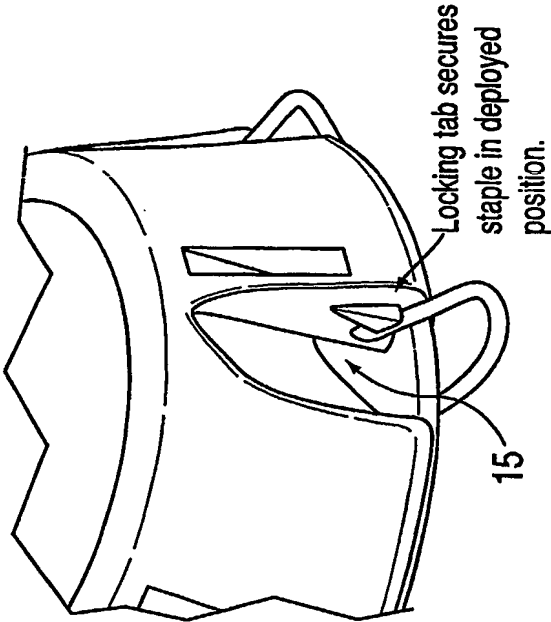


FIG. 4

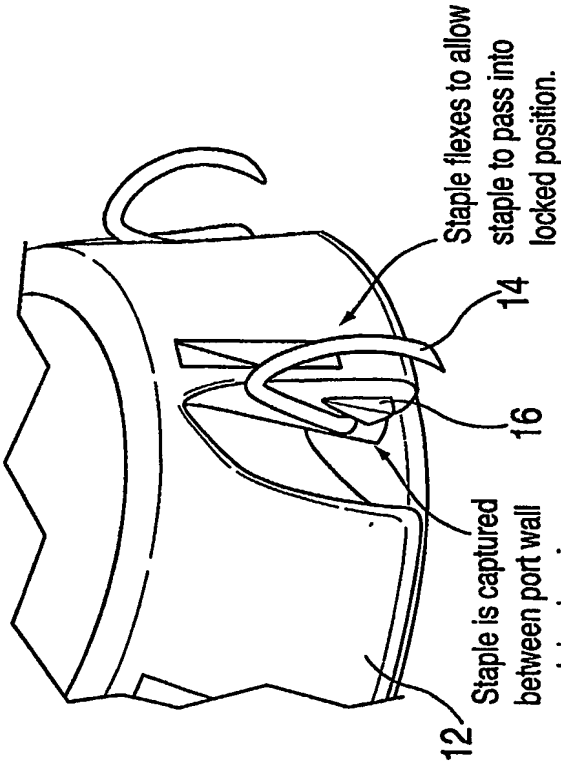


FIG. 3

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Port Delivery System (Distal End)

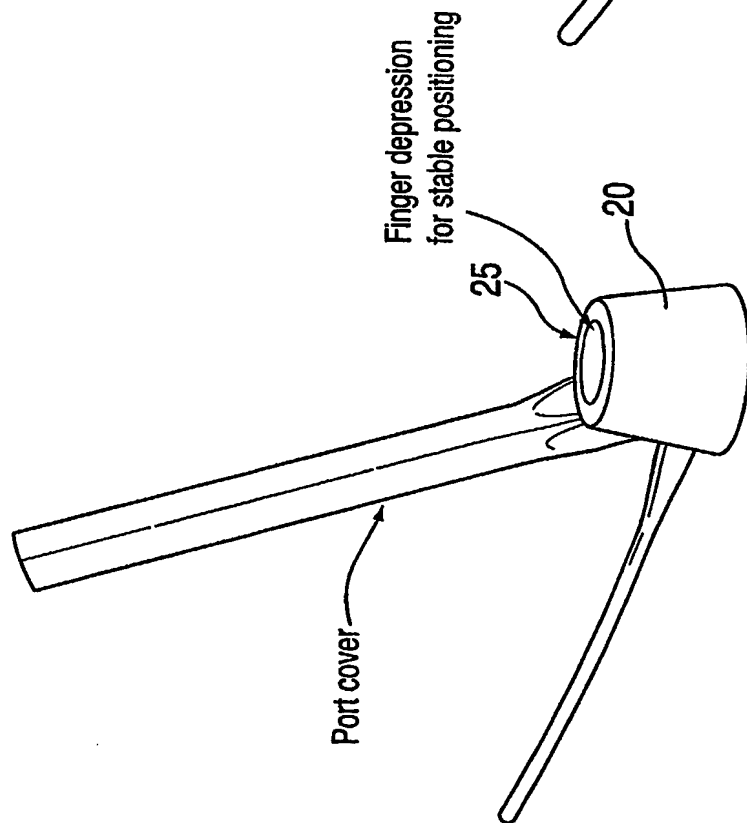


FIG. 5

Delivery System Distal End

- Holds port in delivery location.
- Allows for tactile positioning.
- Deployment instantaneous or controlled by surgeon.

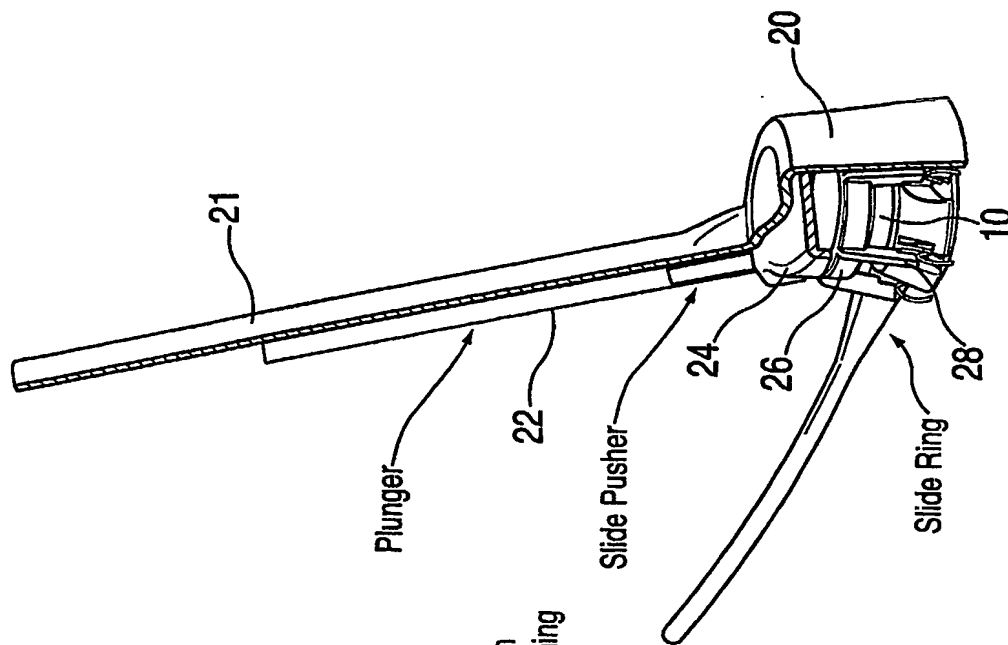


FIG. 6

Port Delivery System (Distal End)

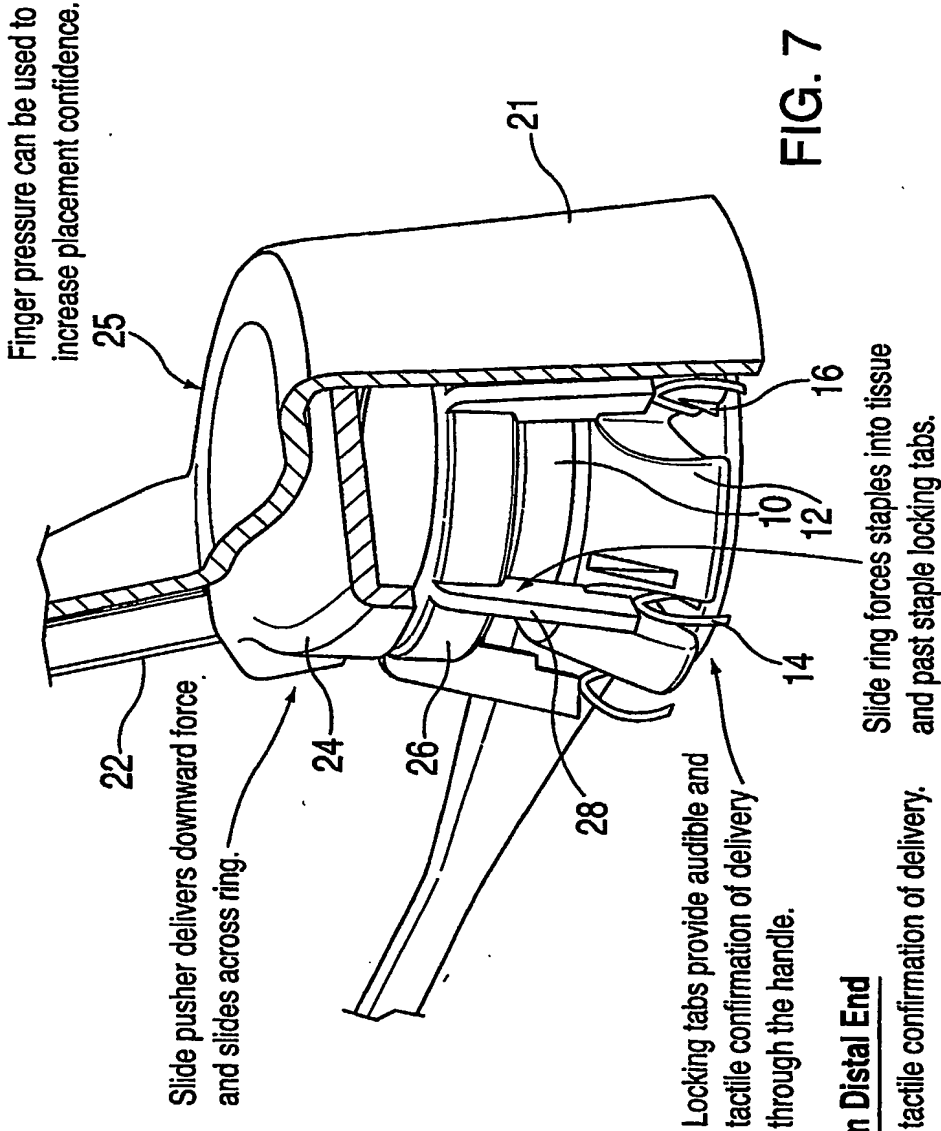
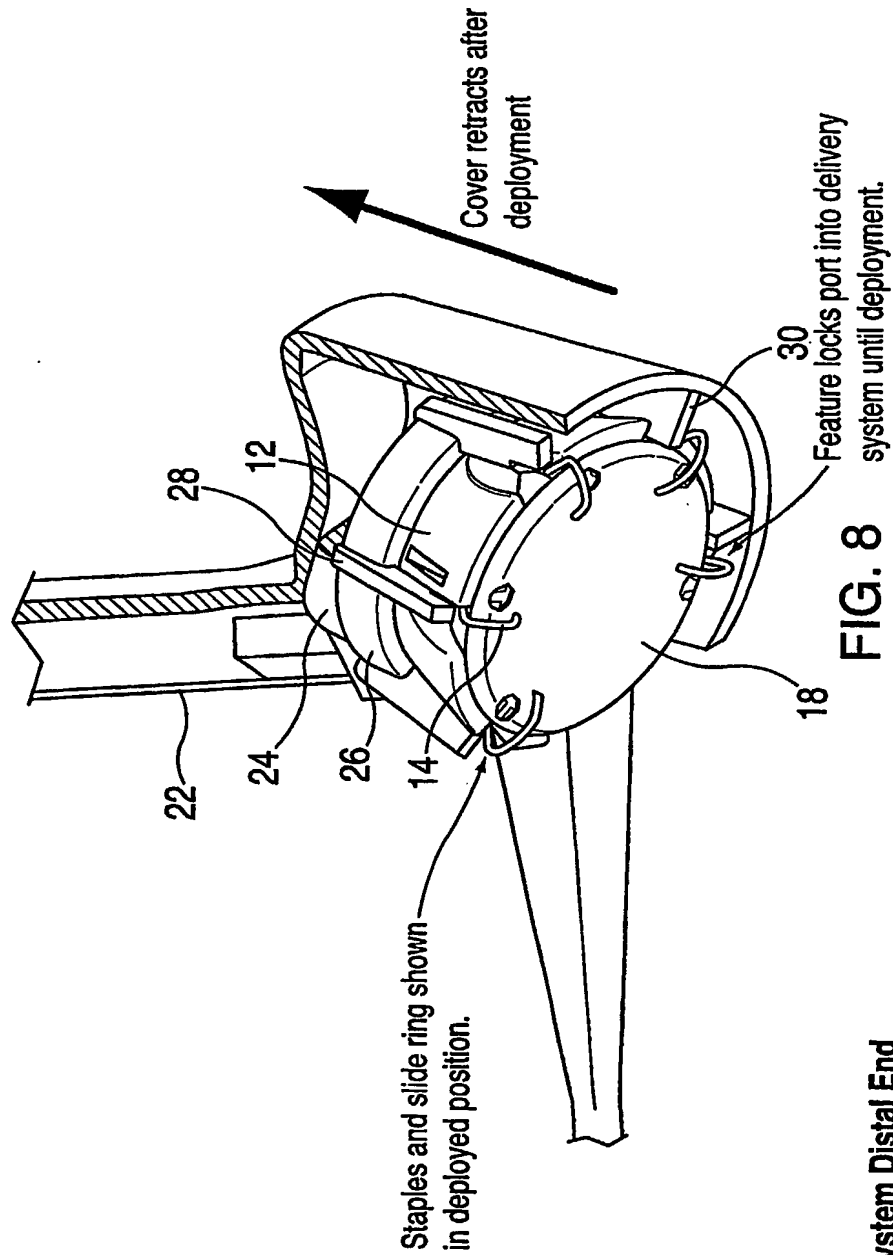


FIG. 7

Delivery System Distal End

- Audible and tactile confirmation of delivery.

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Port Delivery System (Distal End)

Delivery System Distal End

- Cover captures port until deployment complete
- Port released after deployment

Port Delivery System (handle configurations)

Pencil Grip style

(shown with shaft at 60°)

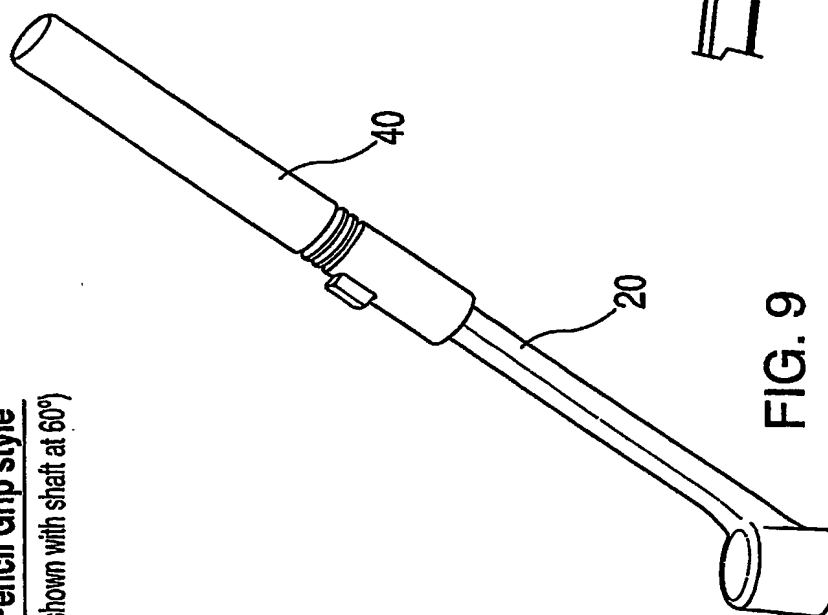


FIG. 9

Simple Button/Trigger Release mechanism

- Produces ~ 0.250 - 0.750" rod travel (depends on force requirement)
- Deployment instantaneous, high impact speed

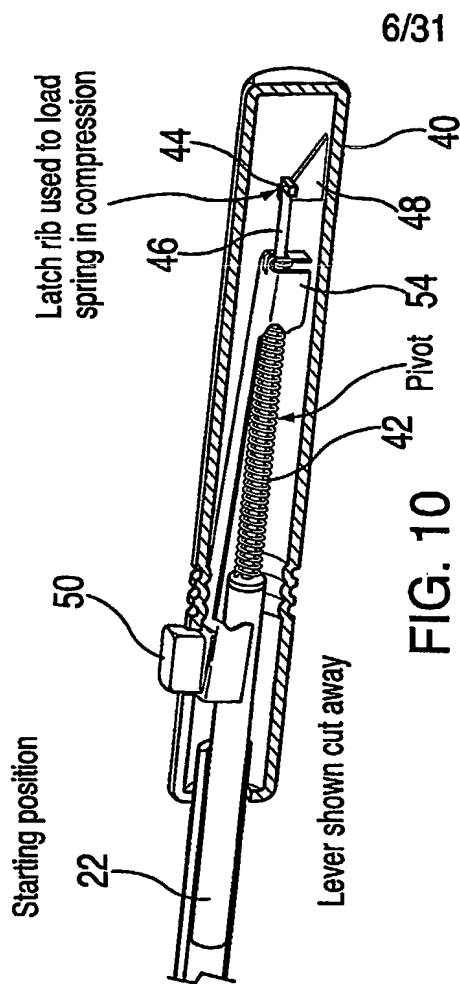


FIG. 10

Upon rotation, rod dislodged from latch rib and allowed to advance

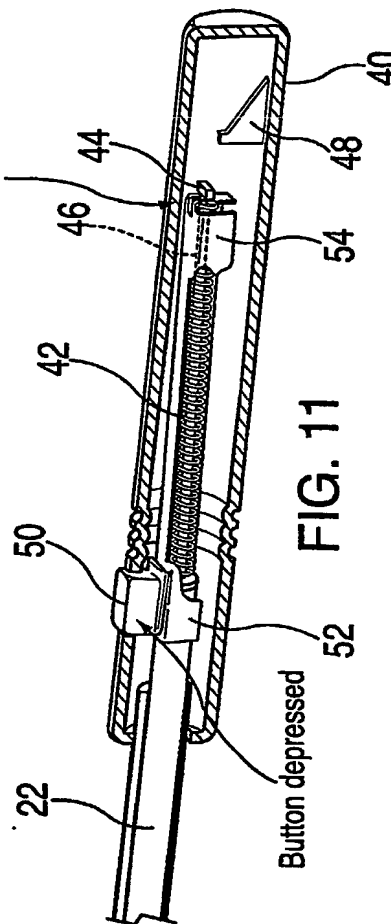


FIG. 11

Port Delivery System (handle configurations)

Palm Grip style

(shown with shaft at 60°)

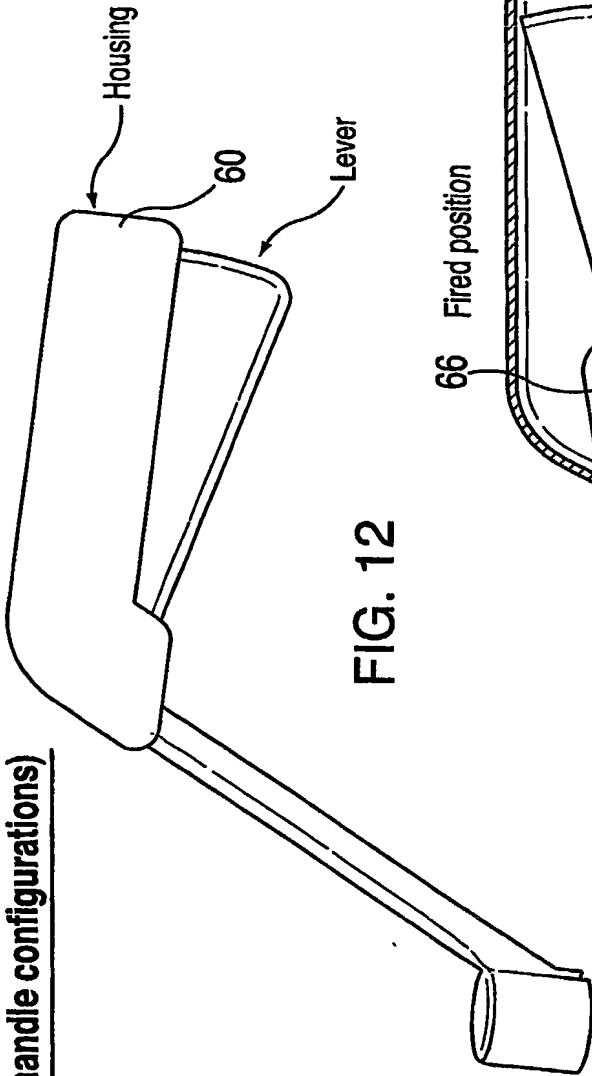


FIG. 12

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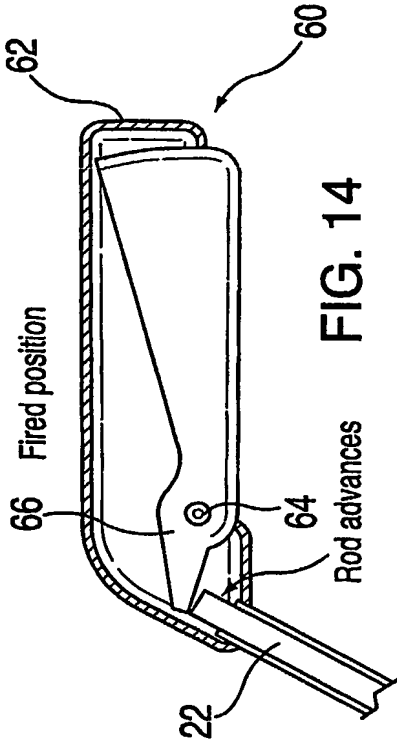


FIG. 14

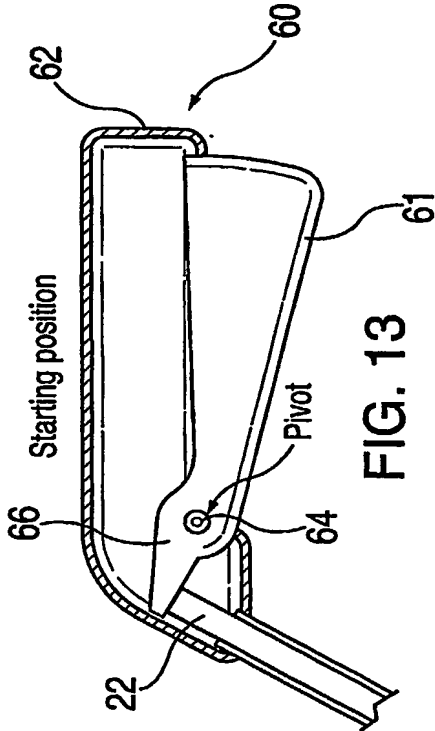


FIG. 13

Lever mechanism

- Produces ~ 0.250" rod travel
- Can produce in excess of 50lb. force on rod (depends on force requirement)
- Deployment speed controlled by operator

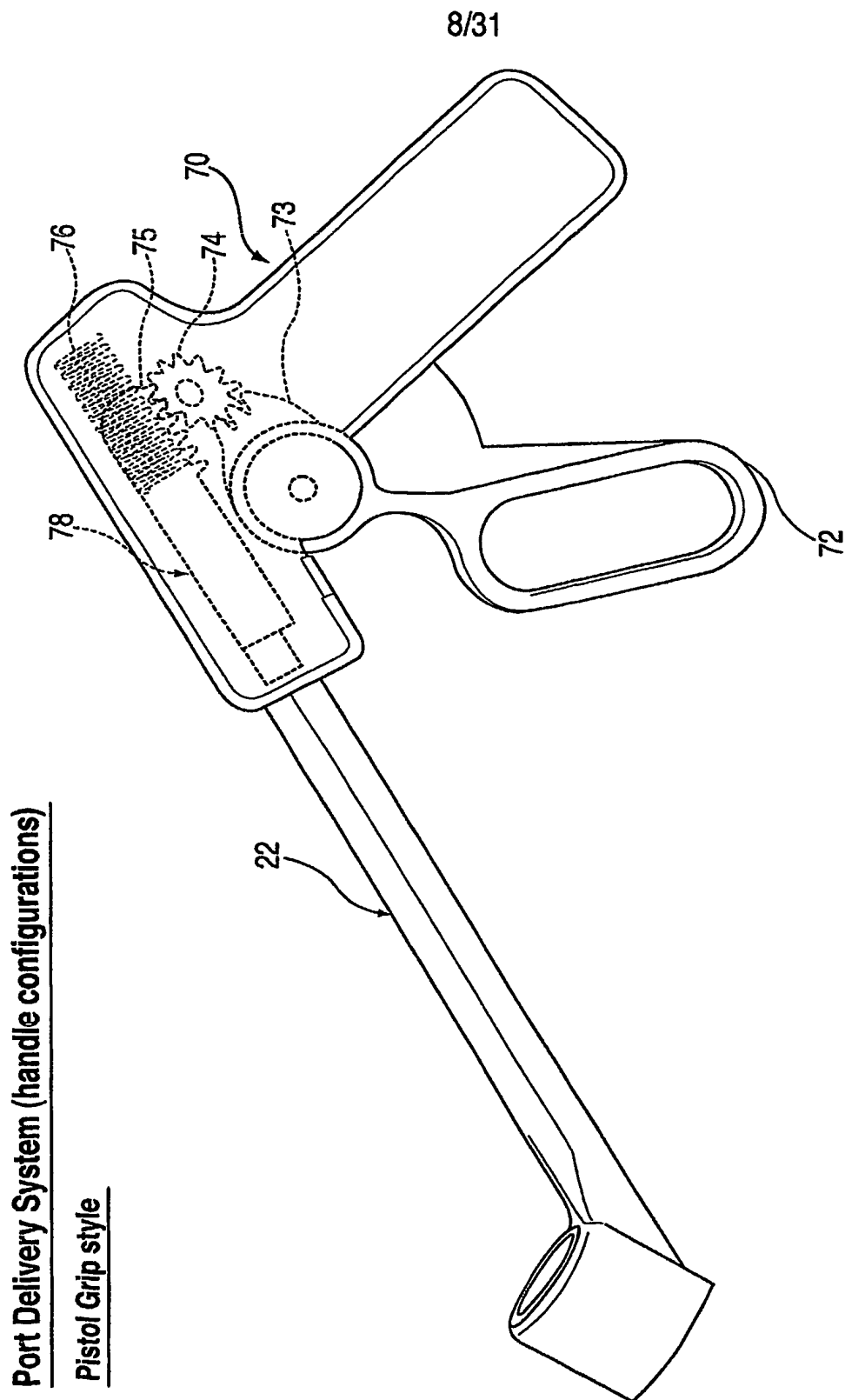


FIG. 15

Port Delivery System (handle configurations)

Pistol Grip style

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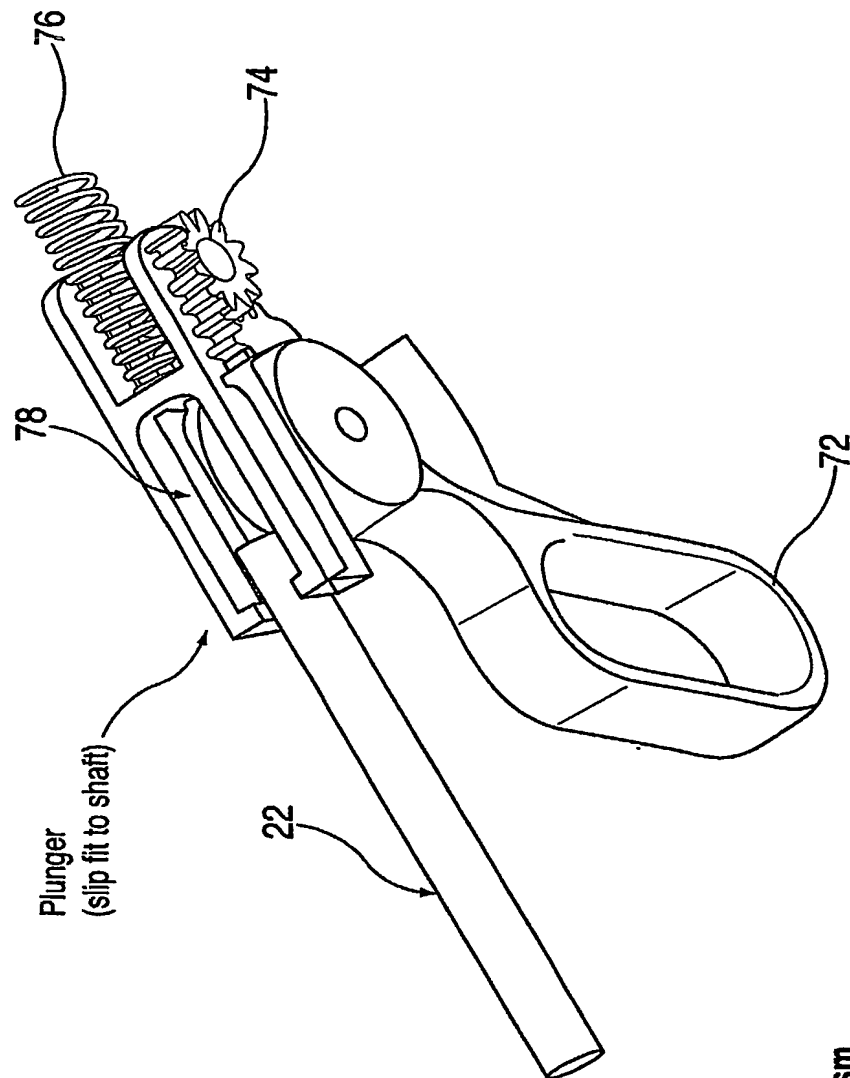
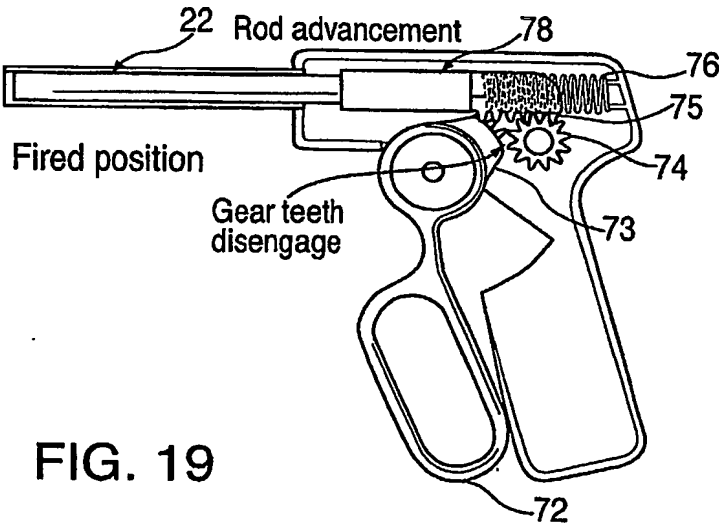
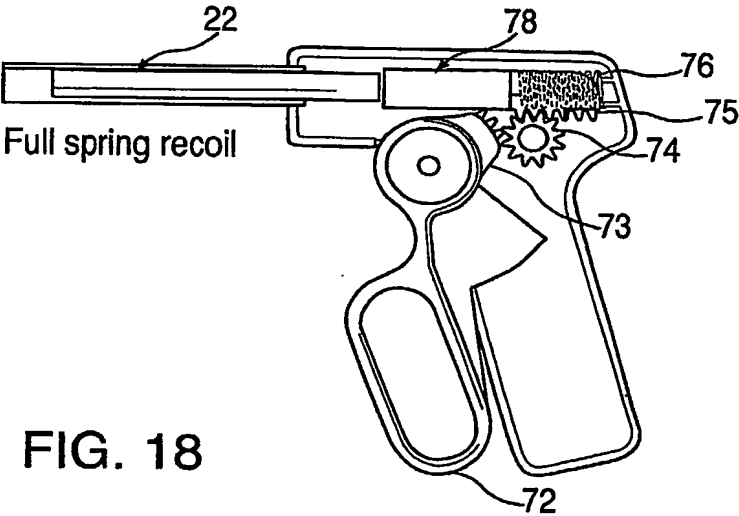
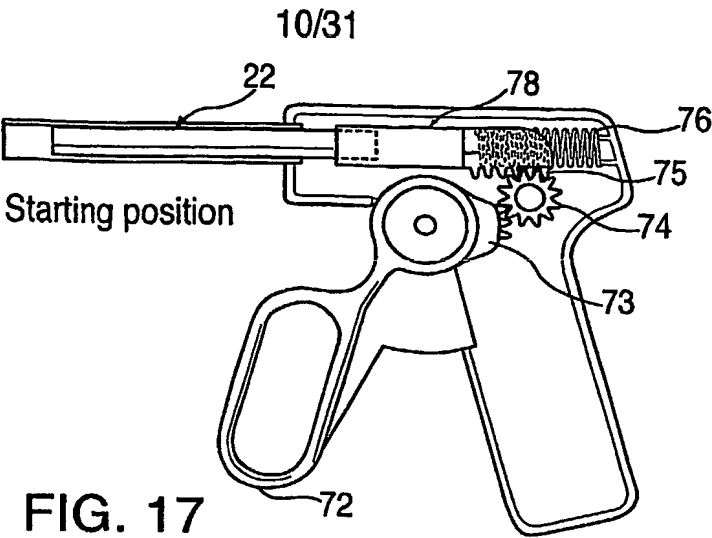


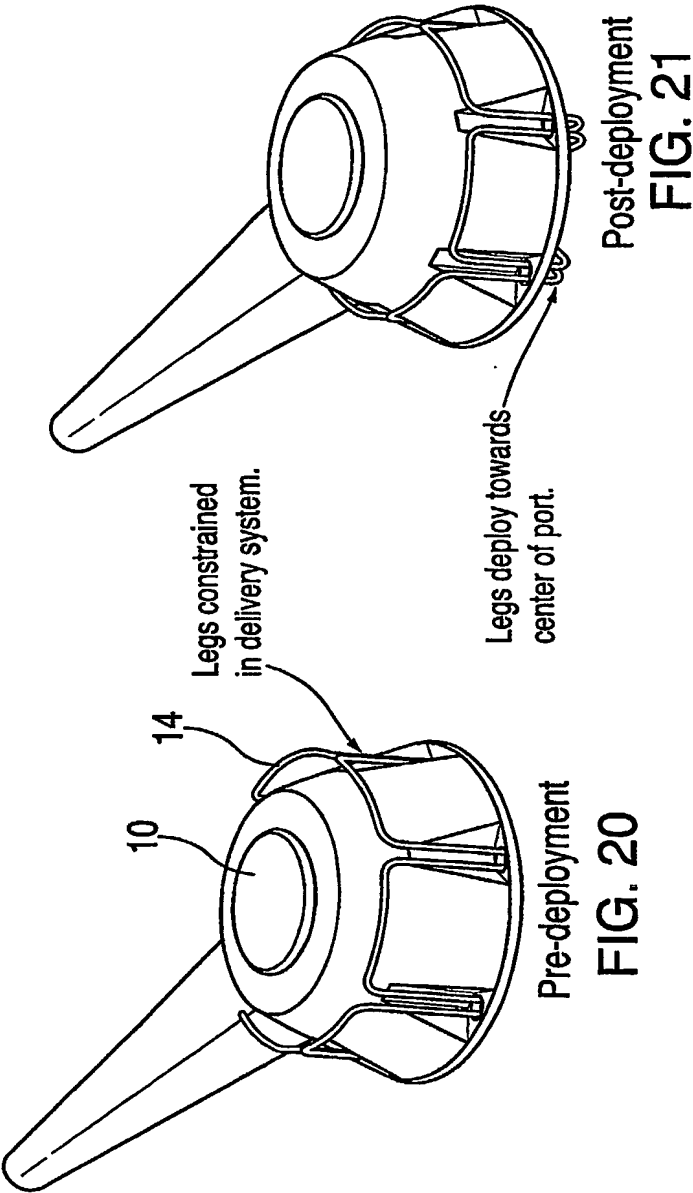
FIG. 16

Gear train mechanism

- Produces ~ 0.400" rod travel
- Can produce ~ 50lb. force on rod
- Deployment instantaneous, very high impact speed



Continuous NiTi Wire Form



Continuous Wire Form Possible fastener leg configurations

A1. Continuous Wire Form: Straight Leg Blunt Tips

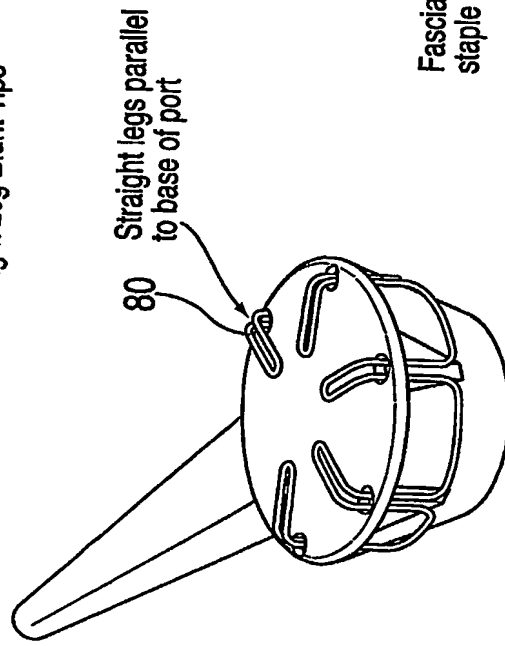


FIG. 22

A2. Continuous Wire Form: Curved Leg, Blunt Tips

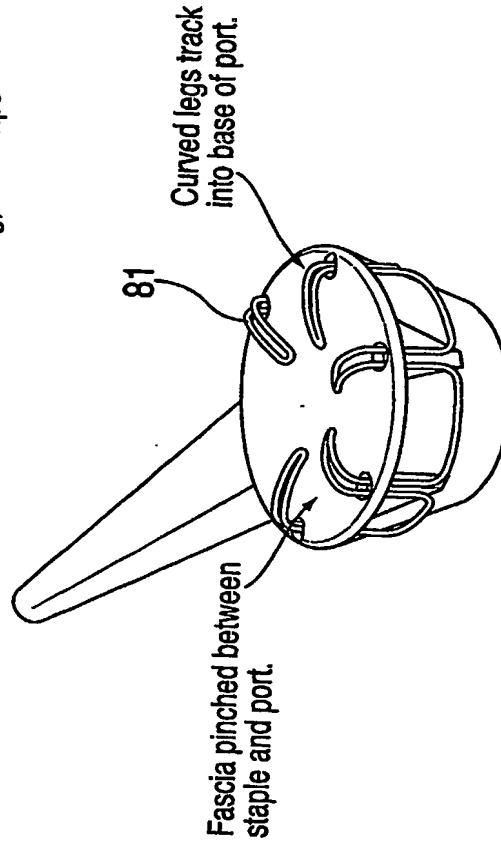


FIG. 23

Continuous Wire Form Possible fastener leg configurations

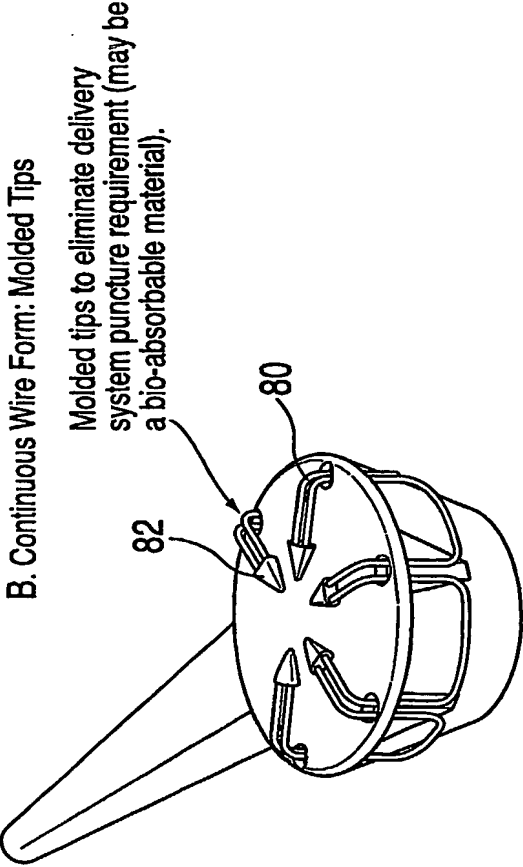
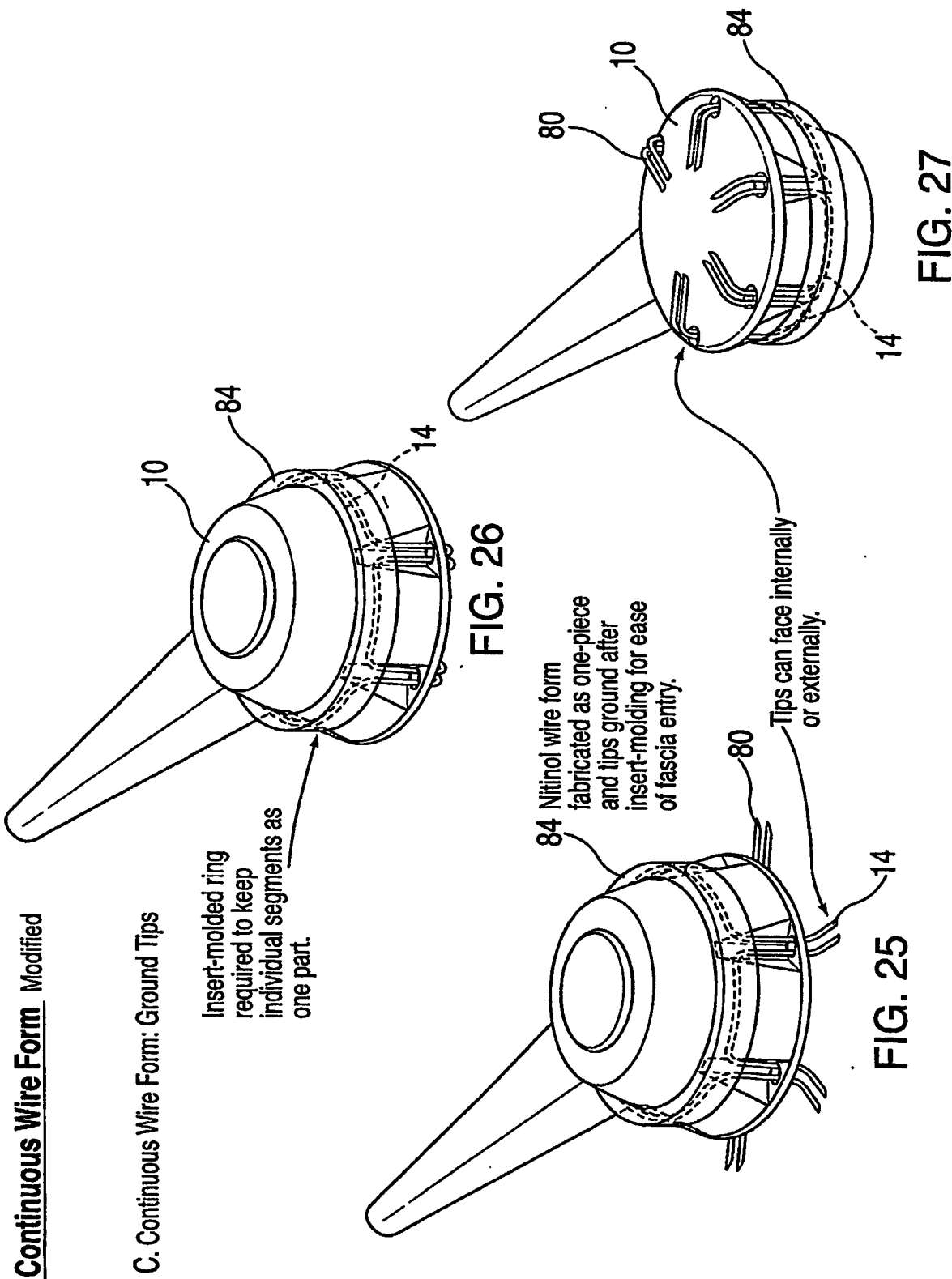


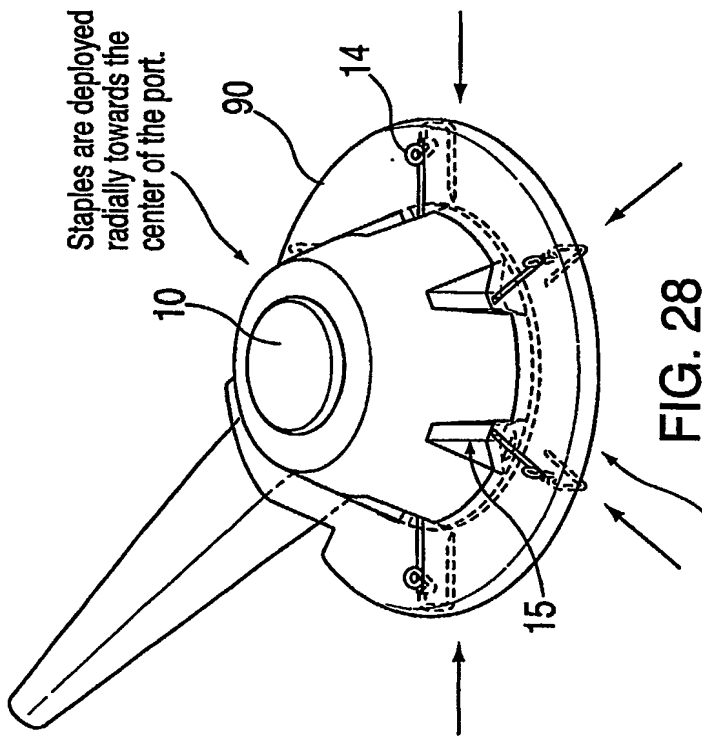
FIG. 24



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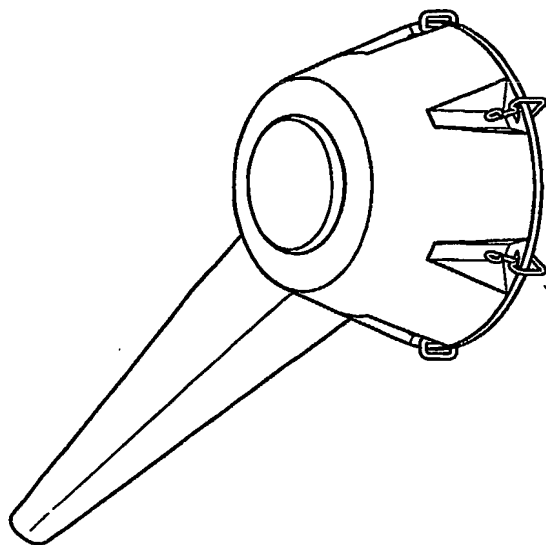
Radial Slide Fastener

D. Radial Slide Fastener: Straight Legs



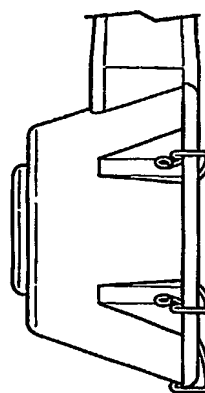
Molded staple guide can be part of delivery system or permanent part of port to keep system as one part.

Optional curved staple will rest tip against bottom of port and guide the fastener through the fascia.



Staple snaps in place in suture holes.

E. Radial Slide Fastener: Curved Legs



Two Part Fastening System: Concept 2

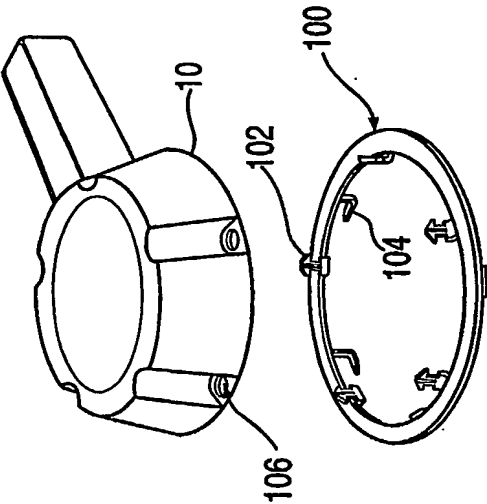


FIG. 31
Pre-Installation

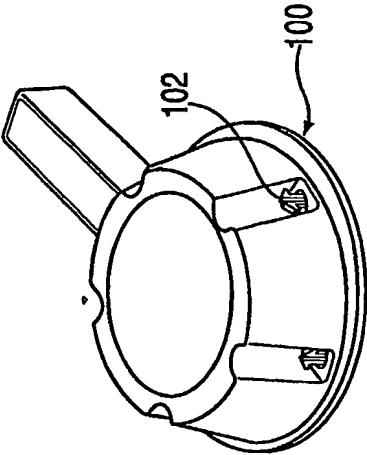


FIG. 32
Post-Installation

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Two Part Fastening System: Concept 1

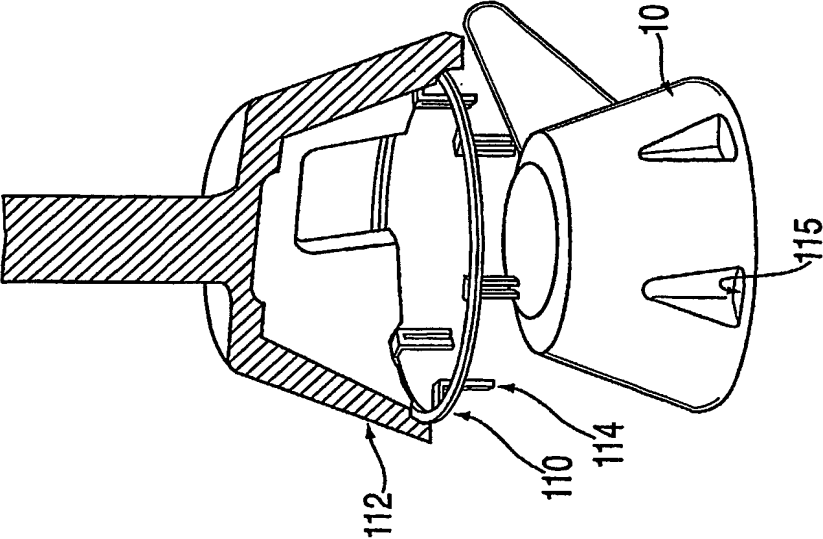


FIG. 33
Pre-Installation

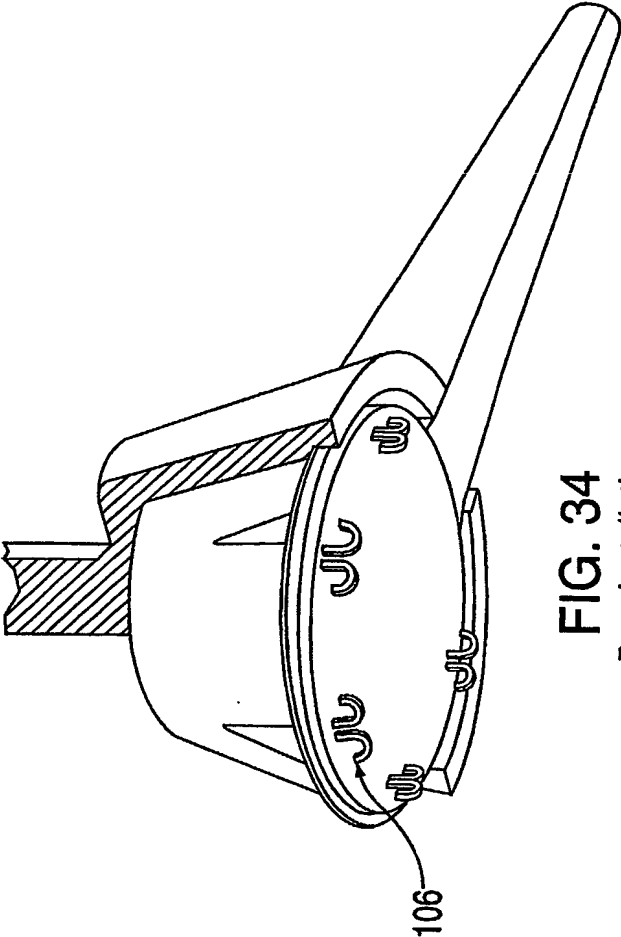


FIG. 34
Post-Installation

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Stand Alone Fastener: Concept 1

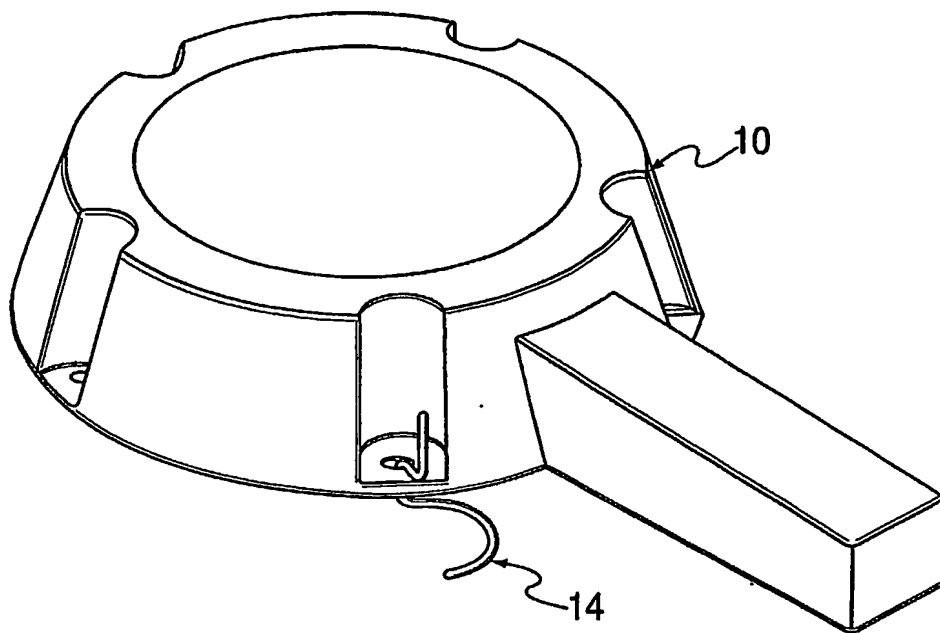


FIG. 35

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Stand Alone Fastener: Concept 2

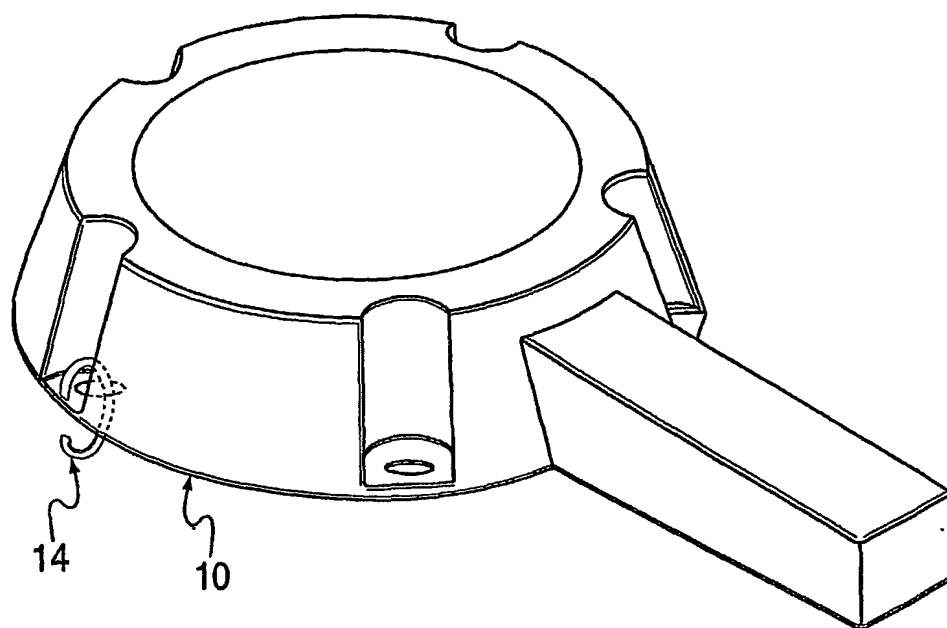


FIG. 36

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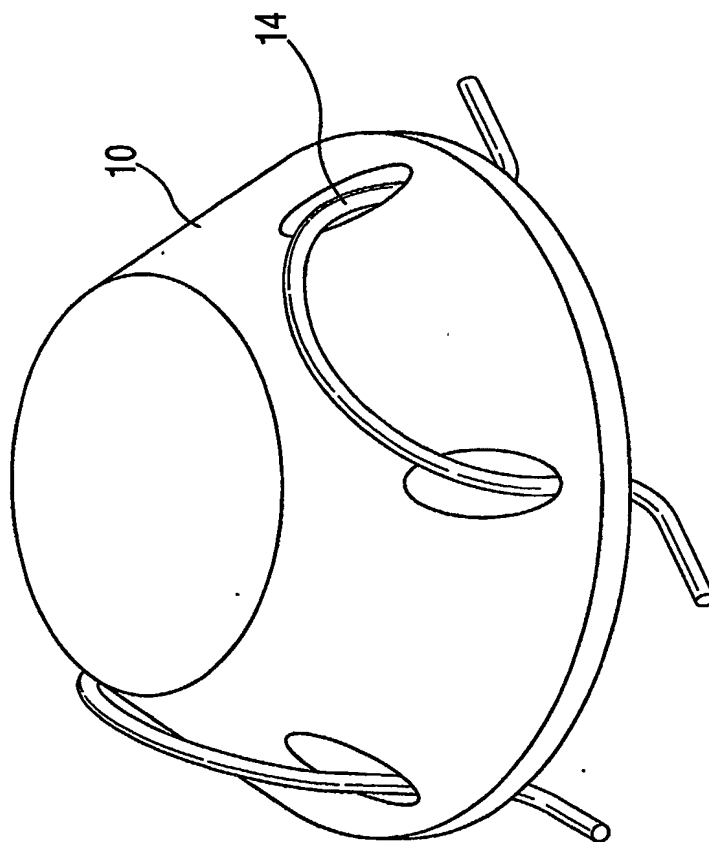
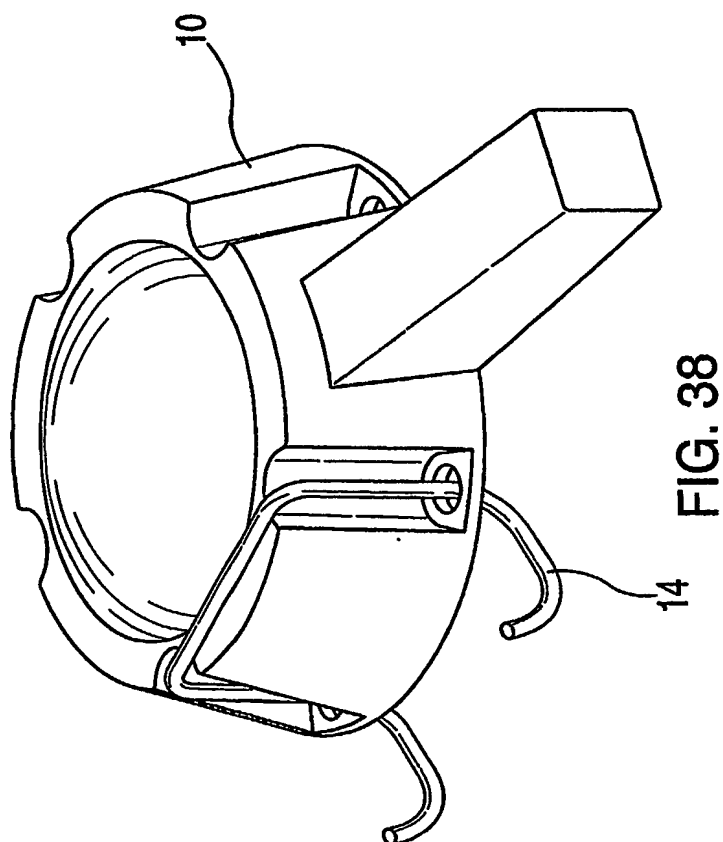


FIG. 37

Stand Alone Fastener: Concept 3

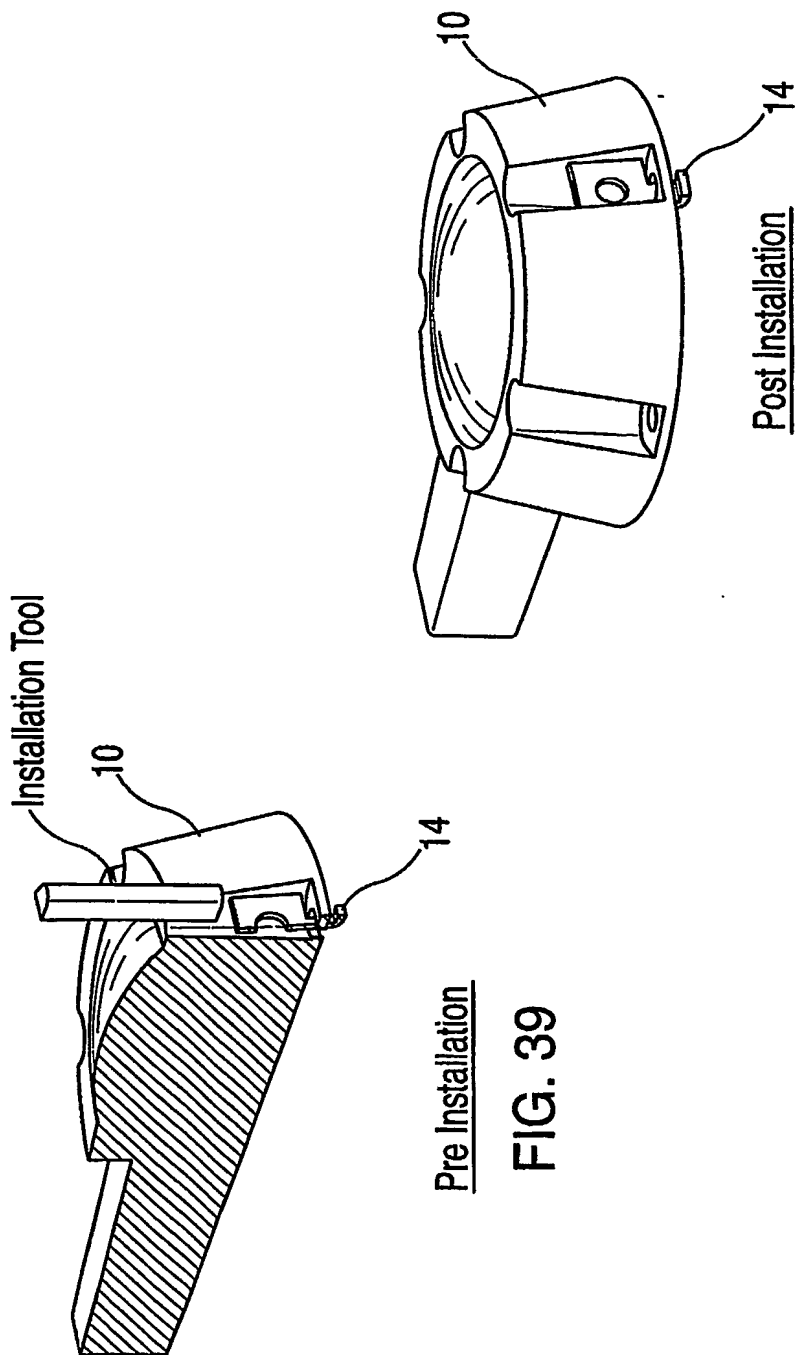
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Stand Alone Fastener: Concept 4



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Injection Port Incorporated System



Pre Installation

FIG. 39

Post Installation

FIG. 40

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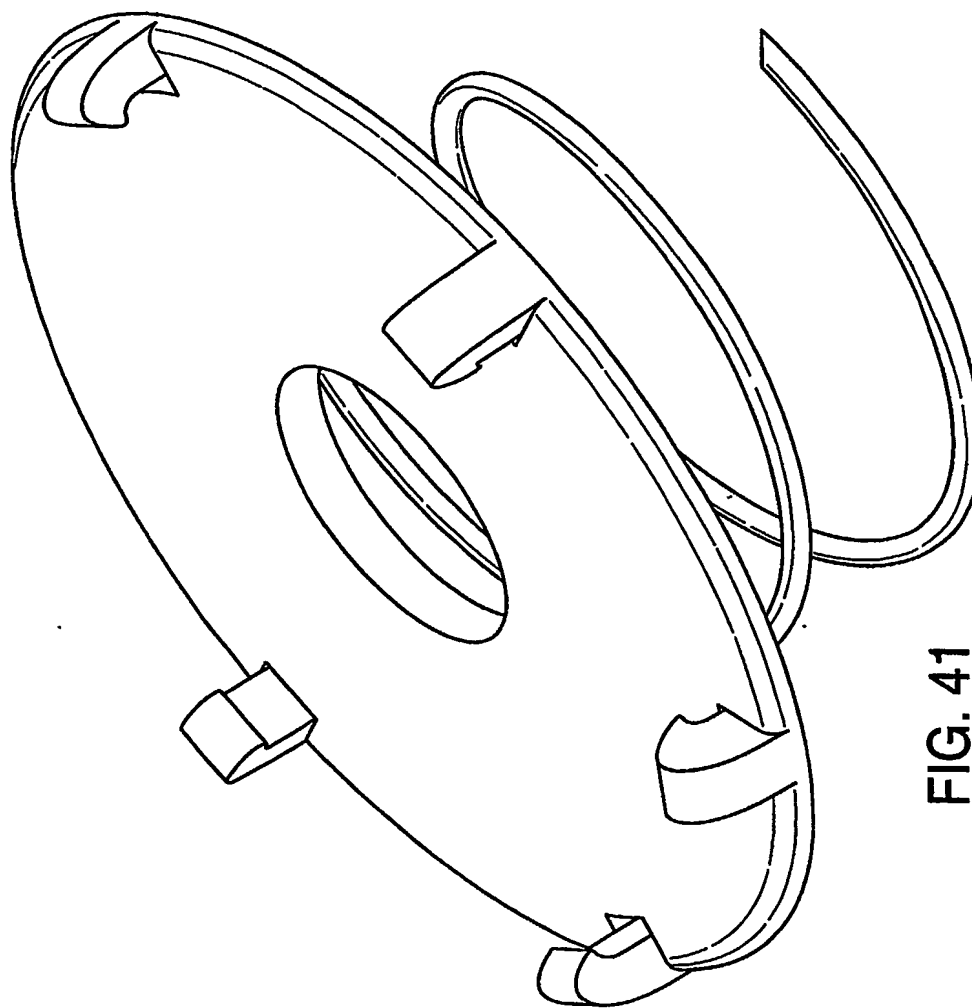


FIG. 41

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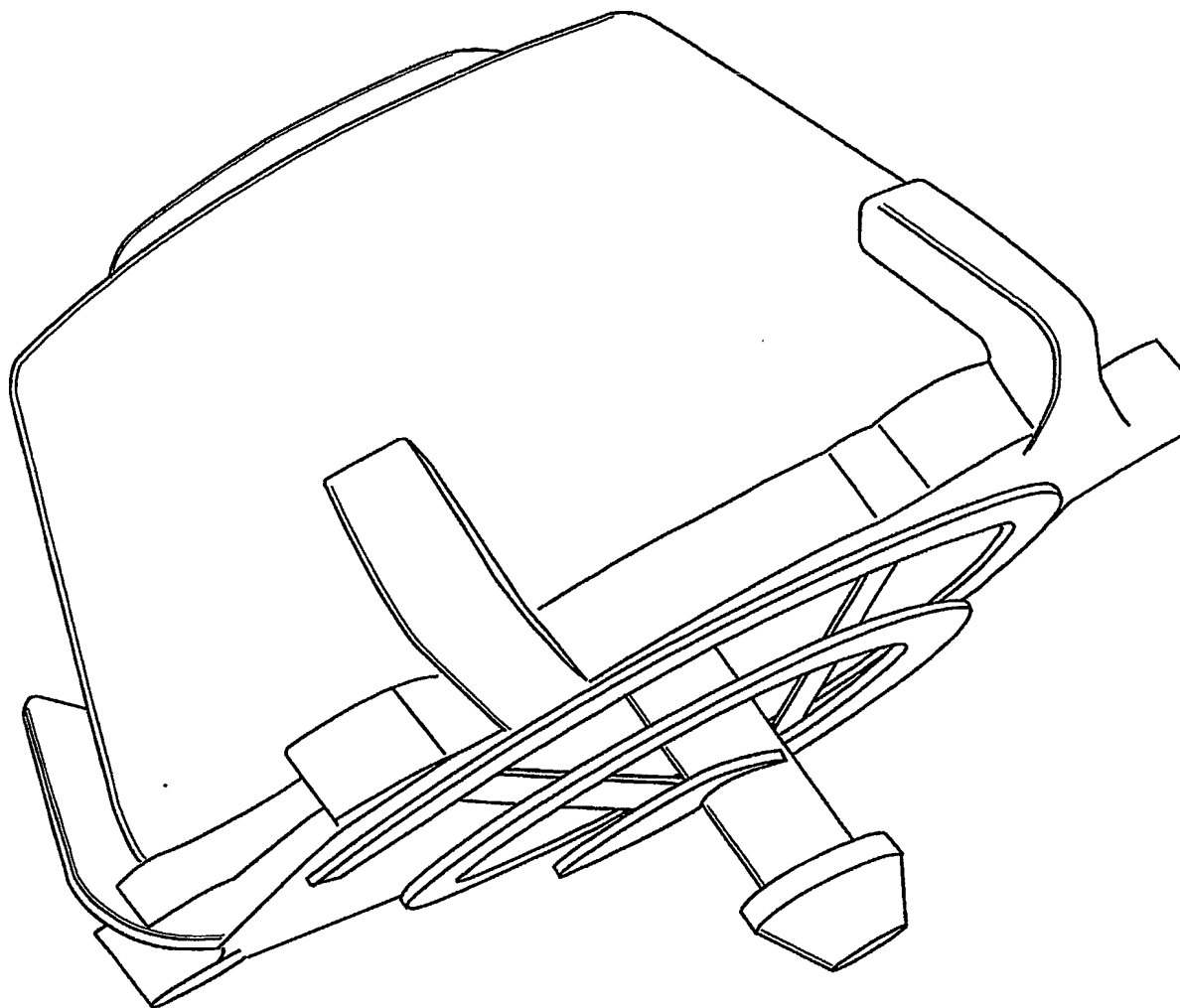


FIG. 42

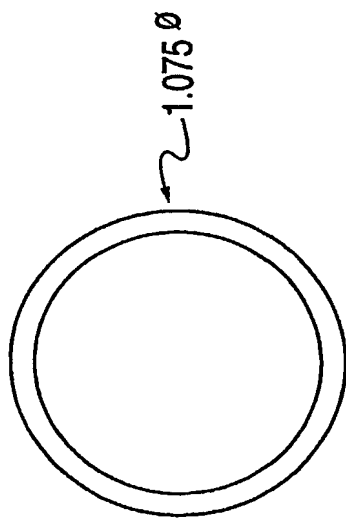


FIG. 43

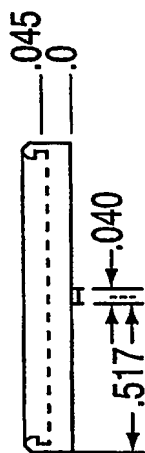


FIG. 44

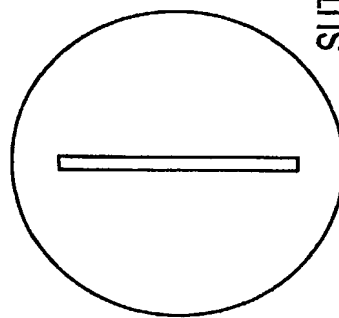


FIG. 45

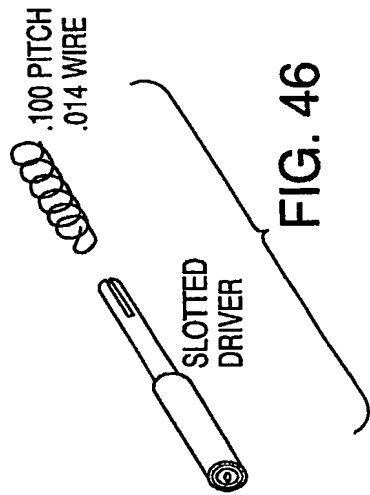


FIG. 46

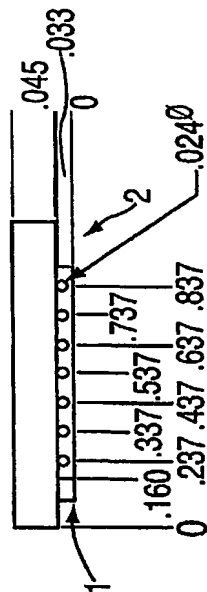
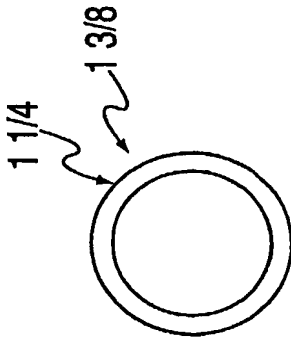


FIG. 47

NOTES:

1. Should have solid stop.
2. Could have latch by having driver end of spring catch on underside of base.



Should be:
hole at either end of slot
Note:
use .201 ϕ mandrel for
curved hooks

FIG. 48

FIG. 51

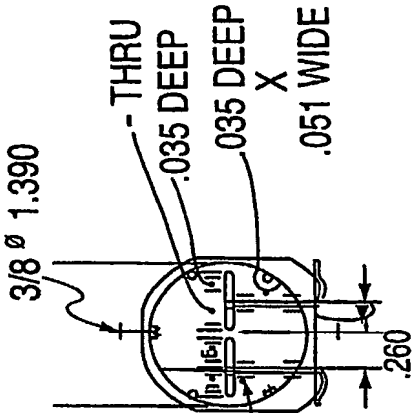
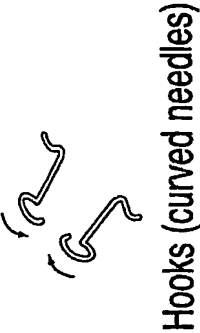


FIG. 49

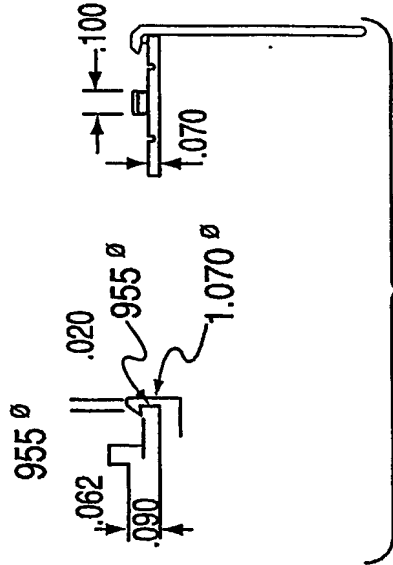


FIG. 50

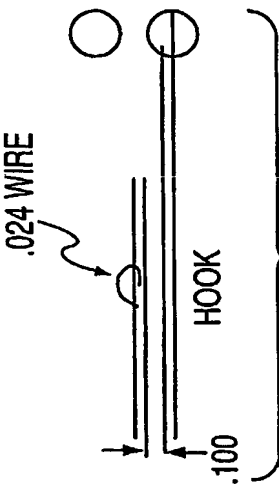


FIG. 52

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PORT FIXATION PROTO # 7

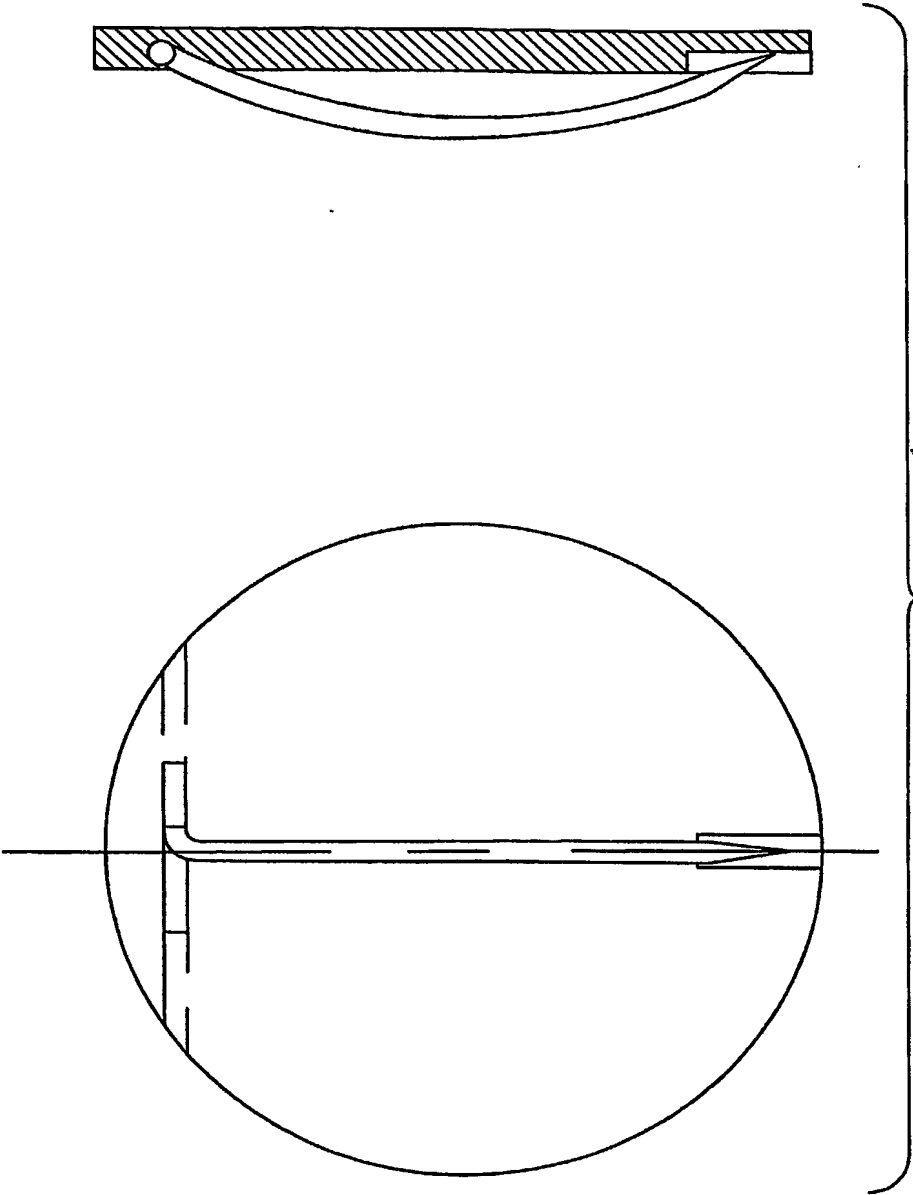


FIG. 53

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PORT FIXATION PROTO # 8

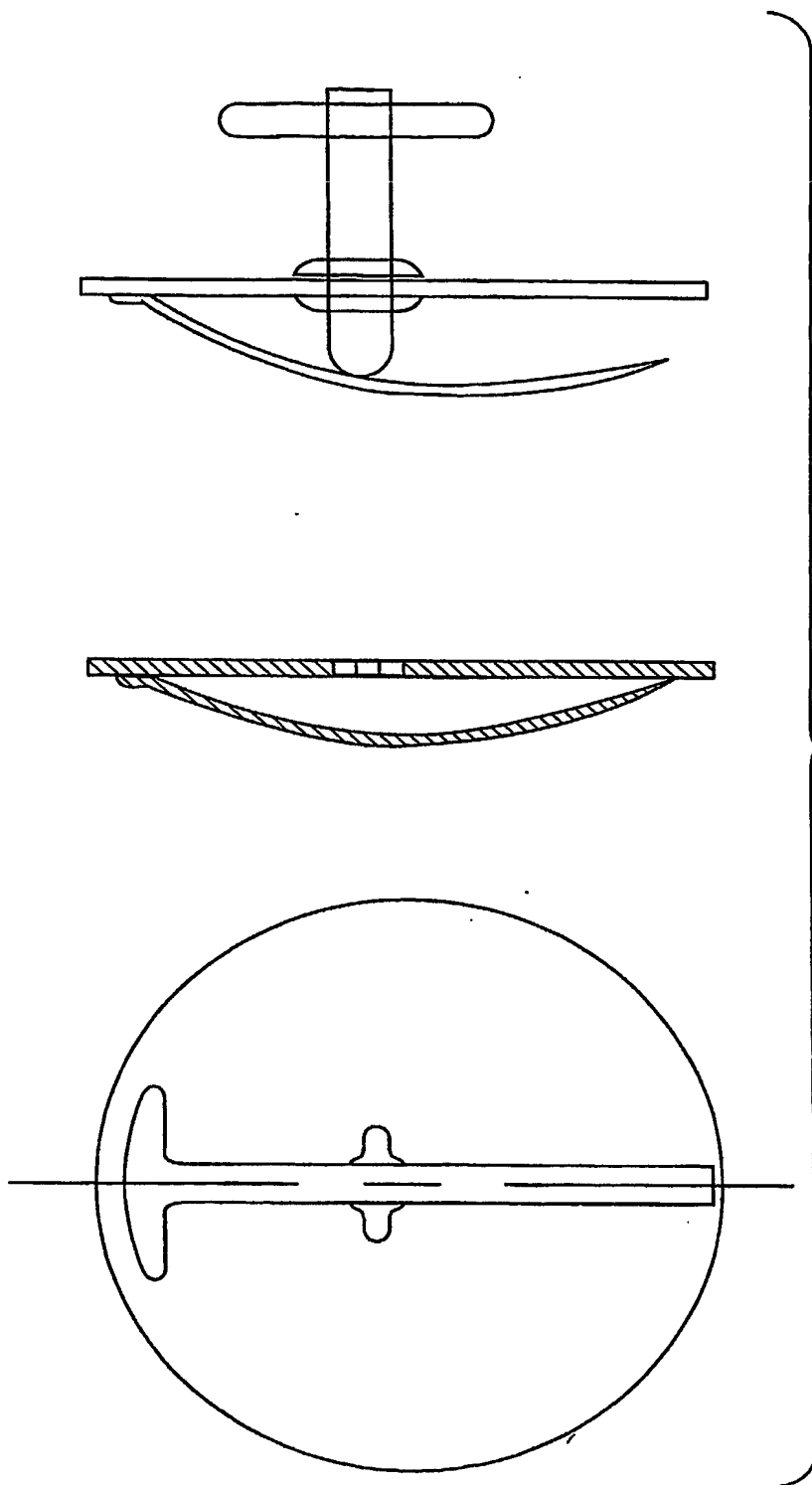


FIG. 54

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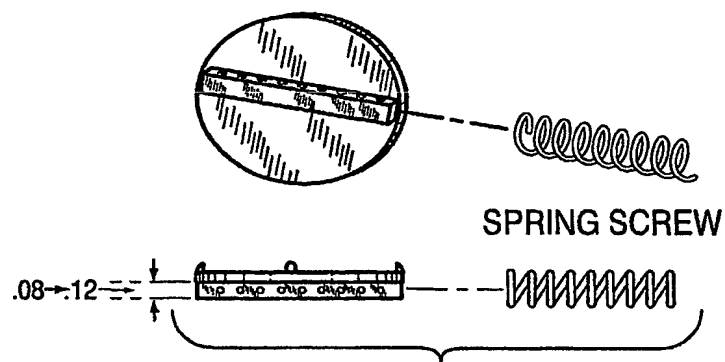


FIG. 55

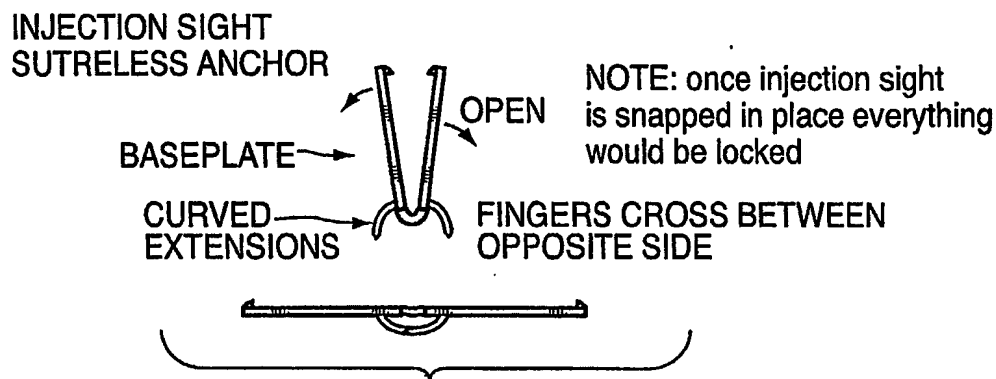


FIG. 56

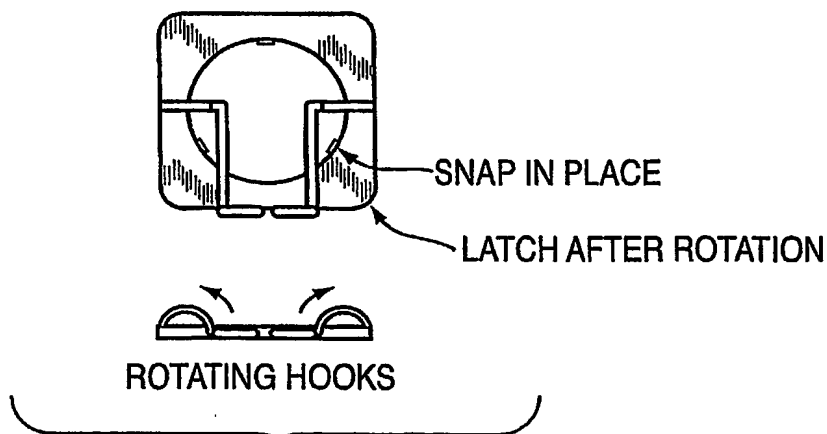
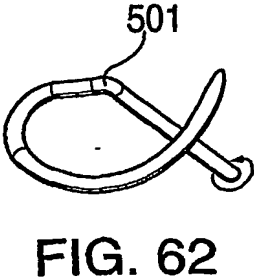
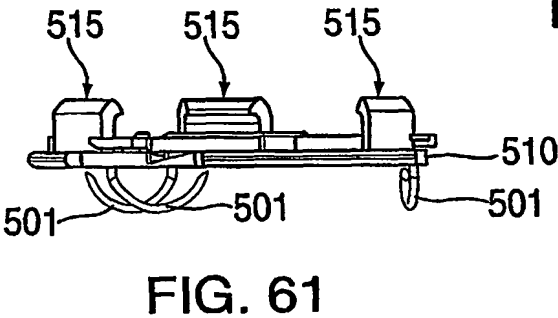
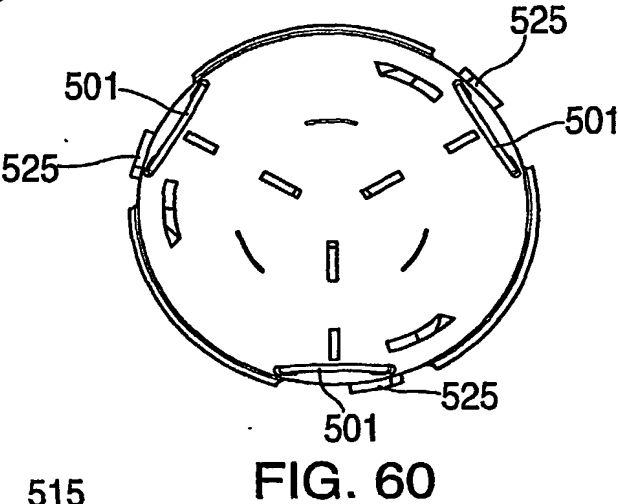
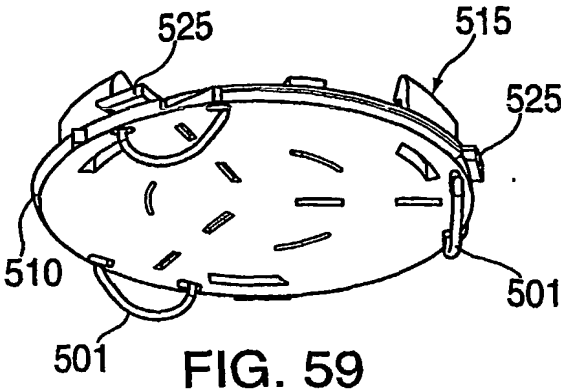


FIG. 57

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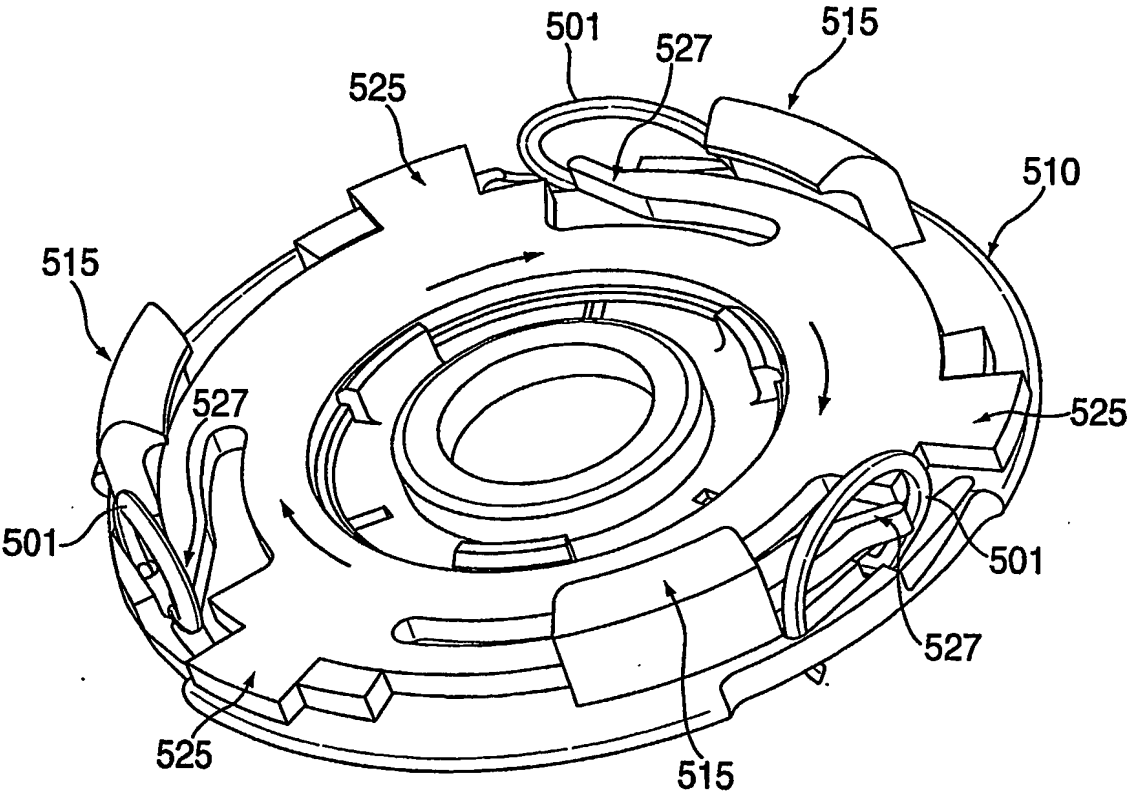


FIG. 58

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